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RUDBECKIA BICOLOR Nutt. Journ. Acad. Phila. 7: 81 (1834).

This species of more western distribution has been collected in eastern Florida. Mr. A. H. Curtiss has found it growing in pine barrens near Jacksonville (no. 4759). Some years since he secured it in fertile fields in Duval county, but distributed it under the name of another species (no. 1423). In 1894 Prof. Tracy secured a remarkably slender form at Biloxi, Mississippi (no. 2896).

The Blue-eyed Grasses of the eastern United States (Genus Sisyrinchium).

BY EUGENE P. BICKNELL.

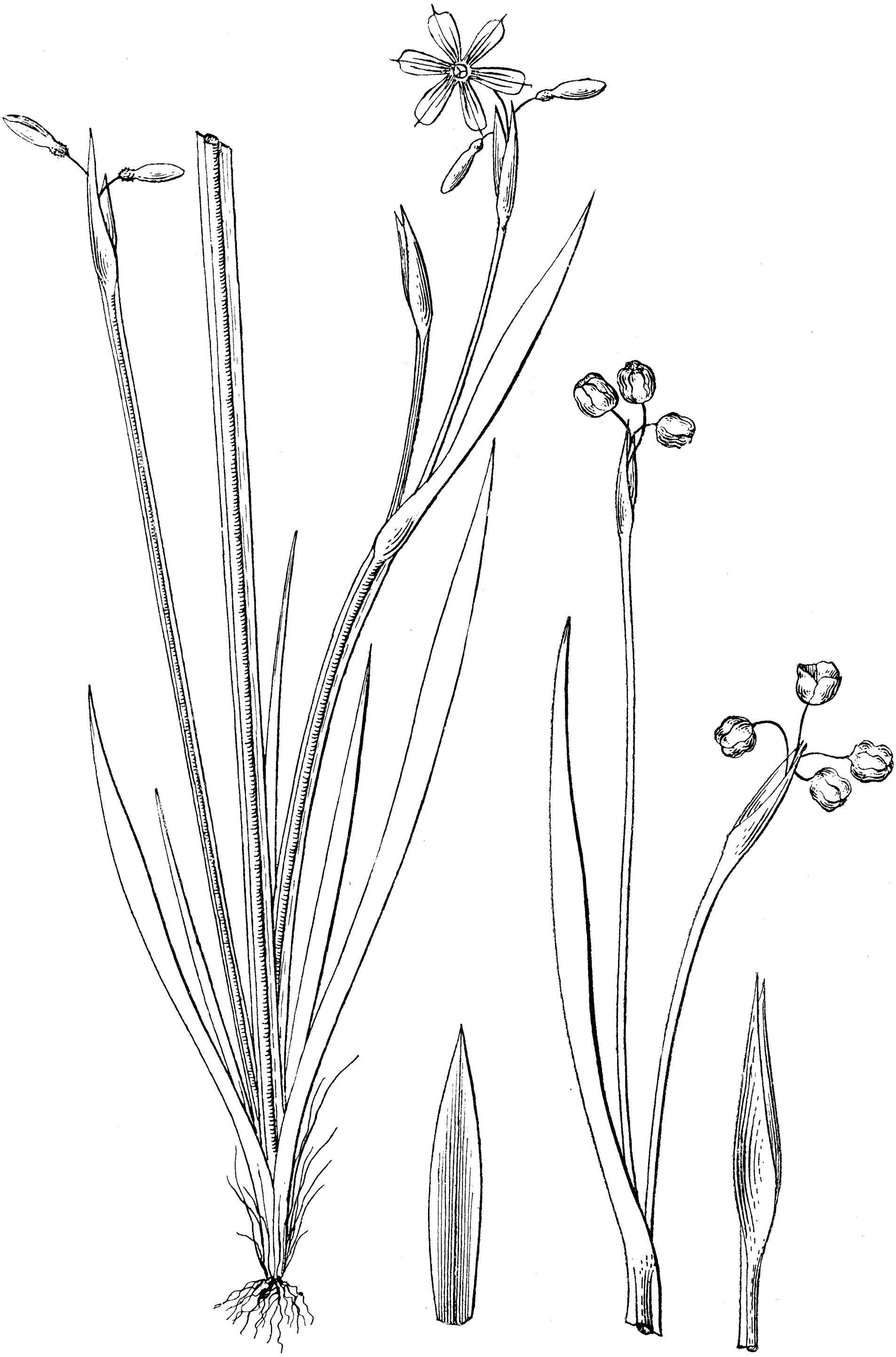
(PLATES 263–265).

No conclusive answer has yet been given to the old question whether there exists more than one East American species of Blue-eyed Grass. The common resource of throwing together under one name all eastern specimens belonging to the genus is easy botany but poor morals. Neither does the recognition of two forms or species satisfy the botanical conscience. It would appear that only when we take notice of three or more kinds of Blue-eyed Grasses do we find ourselves bearing somewhere near the truth. It matters little whether these *kinds* be rated, according to the conceptions of different minds, as species or as forms of less signal rank; the pith of the matter lies in this, that each kind upholds a certain definite type of individualization which has been established in nature.

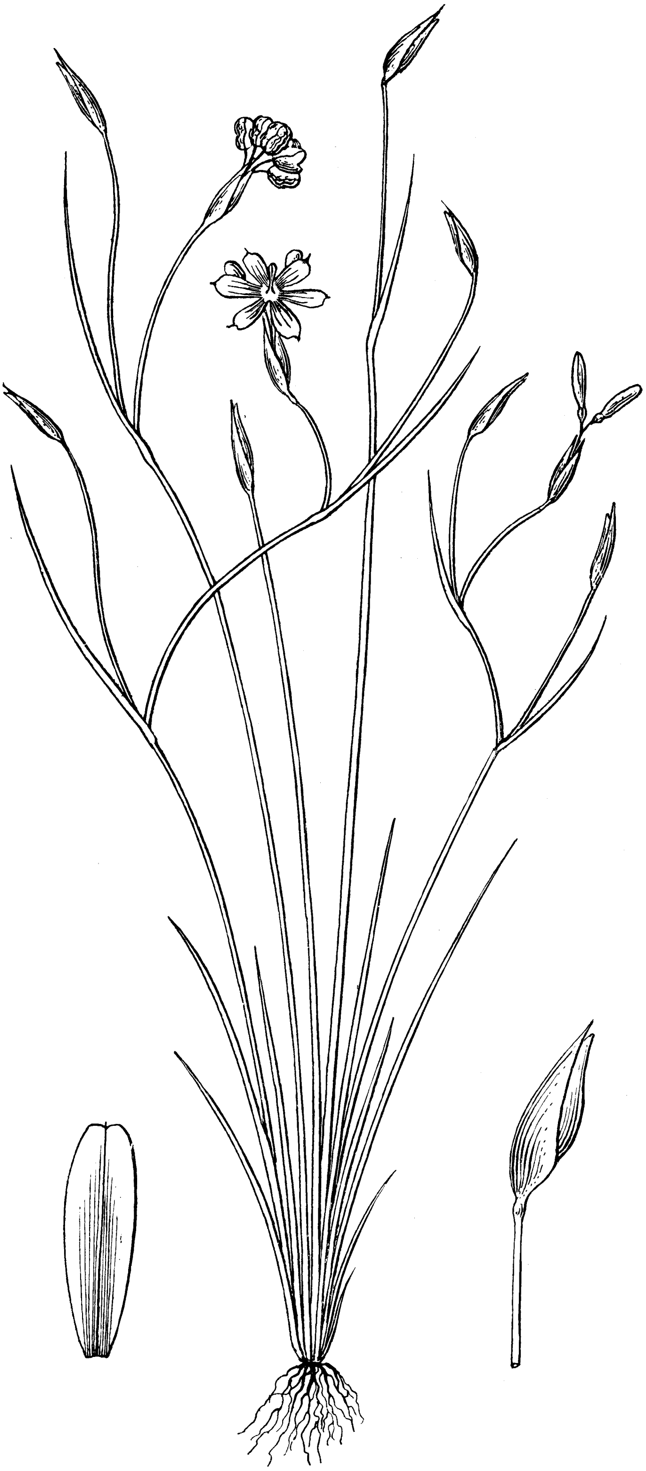
I venture to propose a new eastern species in this confused genus only on the authority of facts perfectly clear to my mind. Nor do I doubt that any student who may approach the subject guided by out-of-doors study will reach views not greatly at variance with my own.

Nomenclature.

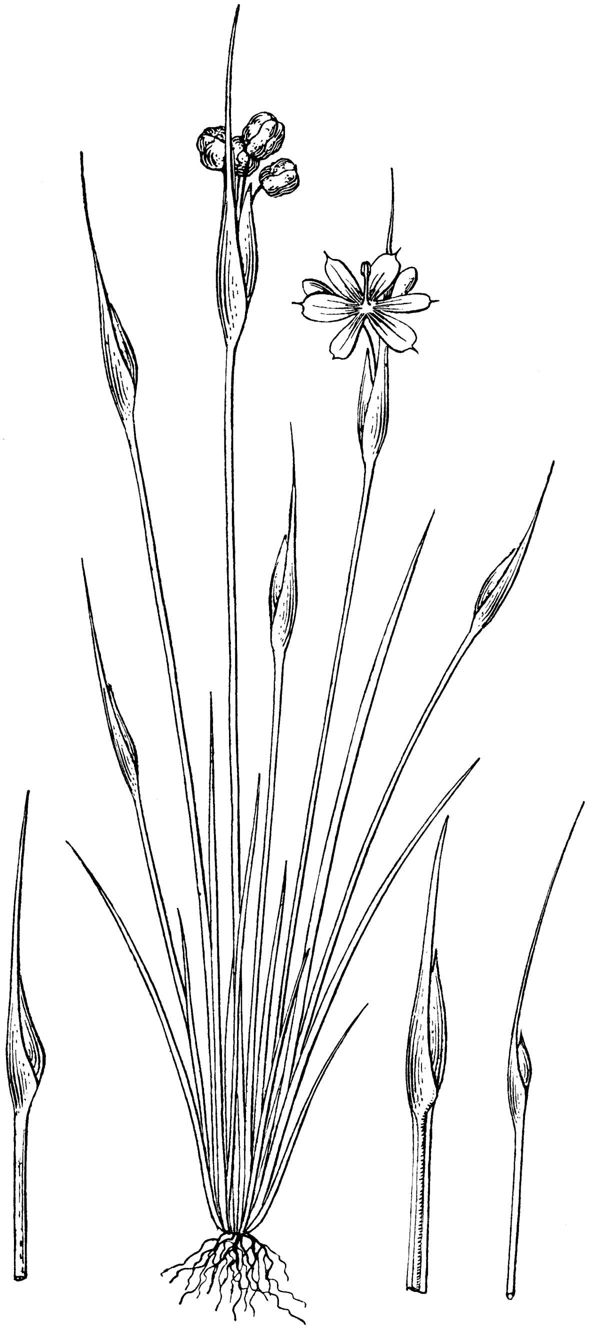
An inquiry into the nomenclature of the East American forms of *Sisyrinchium* discloses the unsuspected fact that our common Blue-eyed grass of the Atlantic States is without any available



SISYRINCHIUM GRAMINOIDES BICKNELL.



SISYRINCHIUM ATLANTICUM BICKNELL



SISYRINCHIUM ANGUSTIFOLIUM MILL.

name. The plant has been variously known as *S. Bermudianum* L., *S. angustifolium* Miller and *S. anceps* Cav. These names are in indiscriminate use to-day.

It has been a subject of disagreement whether the name *Bermudiana* of Linnaeus belongs more properly to the Bermudan than to the American plant. The title of the insular species is certainly not without a slight flaw of indirection; on the other hand it can scarcely be held that the claim of the continental plant is better founded—its support involves an undue insistence on merely technical points at best of uncertain bearing in this particular case. In these circumstances that course seems to be right which unreservedly concedes the name *Bermudiana* to the Bermudan plant.

But even in its time-honored employment in American botany the name *Bermudiana*, it appears, has been used to designate quite another form of *Sisyrinchium* than the one to which it was applied in Species Plantarum. Its application by Linnaeus was not at all, or only in doubtful part, to the plant of our Atlantic seaboard which has borne the name—the plant with broadly-winged, branching stem and subequal spathal bracts. The species which was primarily, if not solely designated by Linnaeus, is the plant of more northward extension, having a slender, simple stem and unequally bracted spathe, which has been known by Michaux's name, *mucronatum*. Linnaeus's description is distinctive of neither species, but his plant was based on Plukenet (Phyt. *pl. 61, f. 1.* 1691, and Almag. 345, 1696) and on Dillenius (Hort. Elth. 49, *pl. 41, f. 49.* 1732). Plukenet both by description and illustration is perfectly clear; his plant is the one we have been calling *mucronatum*. It may be added that the precedence given to the American over the Bermudan plant in Species Plantarum is in conformity with the numbering of Plukenet's figures, which, singularly enough, reverses the order of the figures themselve, and of the descriptions as well.

The exact plant of the Species Plantarum is so perfectly established by the primary reference to Plukenet that it is of little consequence to find that Dillenius is ambiguous. Watson, indeed, has interpreted the Dillenian plant as being the equivalent of our so-called *mucronatum*. Still, the figure in Hort. Elth. appears to represent, in part at least, our Atlantic States plant, and it would thus seem probable that Dillenius actually had both species, but failed to distinguish between them. This, however, is fortunately not now material to the proper assignment of names.

First after Linnaeus, Miller (Dict. ed. VII., 1759) discussed the American plant, as he understood it, naming it *S. angustifolium* and citing Dillenius. To the extent of this citation the exact significance of Miller's name might be held to be doubtful, but his description, as Watson has emphasized, points unmistakably to our simple-stemmed plant. Whatever doubt of this might otherwise have been is forestalled by Miller himself. In his "Gardeners' and Botanists' Dictionary" (1807) he redescribes his plant in clear terms, adopting for it the name *S. anceps* Cav., and citing his own earlier name as a synonym. The bearing of *S. anceps* Cav. is not doubtful; the plant falls conclusively into line with that of Linnaeus and of Miller as our simple-stemmed species.

The true name of this plant is thus found to be *S. angustifolium* Miller, as Watson has already maintained (Proc. Am. Acad. 24: 86–7).

The name *S. anceps* Cav. was adopted by Watson for our branched species on the ground that Cavanilles' illustration shows one plant bearing a short branch. The remaining evidence of the figures, as well as the unequivocal text, was thus quite unaccountably overlooked. As a matter of fact, also, *S. angustifolium* sometimes develops a short lateral branch, just as the figure shows.

Earlier than Cavanilles, Lamarck described the American plant as *S. gramineum* from specimens cultivated in France (Encyc. 1: 408. 1783). His description is entirely satisfactory and identifies his plant perfectly with Miller's *S. angustifolium* described from specimens cultivated in England.

The synonomy of *S. angustifolium* will therefore stand as follows:

S. angustifolium Miller, Dict. ed. VII. (1759).
S. Bermudiana L. Sp. Pl. 954. In part. 1753.
S. gramineum Lam. Encyc. 1 : 408. 1783.
S. anceps Cav. Diss. **6**: 345. *pl. 190, f. 2.* 1788.
S. mucronatum Michx. Fl. Bor. Am. 2. 33. 1803.

The first clear presentation of our branched species was by

Curtis (Bot. Mag.*pl. 464. 1799*), who gives an excellent illustration of our exact plant naming it *S. gramineum.* This name, however, as we have seen, was preoccupied through its use by Lamarck. The curious fact thus develops that this plant appears never to have been described under a name not a synonym of *S. angustifolium.* It may now, therefore be called *S. gramnoides.*

Our eastern Species of Blue-Eyed Grass.

SISYRINCHIUM GRAMINOIDES nom. nov.

S. gramineum Curtis, Bot. Mag. *pl. 464.* 1799. Not *S. gramineum* Lam. Encyc. 1 : 408. 1783.

S. Bermudianum of American authors, not Linnaeus.

S. anceps S. Watson in A. Gray's Manual, Ed. 6, 515. Not Cavanilles.

Specific Characters: Green or subglaucous, drying dark; stem bifurcate, winged; leaves thin; stem and leaves with scabrous edges, 1″–3″ wide; bracts of spathe subequal, acuminate; floral-scales brownish-tinged; capsule large, 1½″–3″ wide; seeds ½″ or more in diameter, pitted.

Commonly over 1° high (6′–2°); green or somewhat glaucous, usually drying dark. Stems wing-flattened, mostly 1½″–2″ wide (1″–3″), the wing-margins perceptibly broadened upward from base to top. Leaves thin and grass-like, as broad as the stem and from one-half to three-quarters its length, or rarely equalling it, minutely serrulate or denticulate on the edges, as are the stem and the branches, or usually so. Stem dividing above or from about the middle into two (exceptionally three or four) branches 2′–8′ long, subtended by a conspicuous grass-like leaf which is slightly narrowed above the compressed-clasping base and broadened higher up, as are the larger basal leaves. Branches winged, mostly suberect and unequal, but variable, usually the inner one elongated and erect, the outer one about half its length, often curved, broader, sometimes over 1″ wide with its margins passing uninterruptedly into the continuous spathe; rarely the outer branch may be the longer, or the two may be subequal; occasionally the outer one divides into two peduncles subtended by a leafy bract. Not infrequently simple and leafless scapes rise among the normally branched ones, simulating the stem of *S. angustifolium.* Bracts of spathe usually green and herbaceous (sometimes purplish), compressed, usually serrulate-scabrous on the keel, the outer one with scarious margins usually only below the middle, subequal (occasionally the outer one is sowewhat elongated, especially when the scape is simple); inner bract narrowly acuminate or acute, 6″–10″ long. Hyaline floral scales narrow, becoming distinctly brownish-tinged. Divisions of perianth 4″–5″ long, 1½″–2″ wide, sparsely pubescent on outer surface. Young capsule pubescent as in our other species. Capsules usually 3 or 4 (exceptionally more) subglobose, about 2″ long and broad (1½″–3″), disposed to be spreading or even recurved on slender pedicels 8″–12″ long. Seeds .04–05 in. in diameter, black, globose, more or less pitted. (Plate 263.)

Eastern States south from Massachusetts, but exact distribution not well made out.

Grassy places generally, preferably in damp soil; sometimes it occurs in shaded woods, where it is deep green and forms large separate tufts producing a profusion of finally prostrate stems. In drier, open situations it is erect and somewhat glaucous; among deep grass in low grounds the stems may be weak and ascending, and the tufted habit nearly or quite lost.

Several specimens from coastwise localities from New Jersey southward agree in having three and four clustered branches, decidedly purplish spathes, narrow stem and narrow attenuate leaves. Specimens from Florida, which will doubtless prove to be separable, are coarser in habit with elongated narrowly attenuate, even flexuous leaves often exceeding the stem, short, clustered peduncles, the bracts of the spathe strongly white-margined, the inner bract commonly longer than the outer one, the hyaline floral scales long and often exerted beyond the bracts.

SISYRINCHIUM ATLANTICUM n. sp.

Specific Characters: Pale and glaucous, not drying dark; stem slender and wiry, branched, margined or narrowly winged; stem and leaves ¼″–1″ wide, very smooth, leaves rather stiff; bracts of spathe subequal; inner bract obtuse or truncate; floral scales silvery white; capules oblong ¾″–1½″ wide; seeds ¼″–½″ in diameter, pitted or nearly smooth.

Much slenderer than *S. graminoides*, when growing with it mostly taller. Pale and glaucous, not drying dark; very smooth except the branches and tips of the leaves which are minutely denticulate-scabrous. Stem often inclined or becoming prostrate, much longer than the leaves, 8′–2° high, slender and rather wiry, uniformly margined or narrowly winged, often subterete at base, usually less than 1″ wide, sometimes only ¼″, dividing above into two (1–3) short slender branches, or the outer branch elongated as a spreading prolongation of the stem and again branched. Occasionally a simple stem is developed, its spathe sometimes showing a slightly elongated outer bract. Leaves rather firm and stiff, narrow, 1″ wide or less, attenuate often arcuate, from ¼–¾ the length of the stem. Stem-leaf much smaller and narrower than in *S. graminoides*, scarcely or not at all broadened above. Branches slender, even filiform, narrowly margined, especially the outer one, 1½′–4′ long, mostly short and subequal, either parallel or somewhat spreading, when branched again often widely spreading, geniculate at the node and bearing a secondary leaf. Stem and branches usually purple-spotted and slightly constricted at the nodes and below the spathes. Spathes as a rule plumper and more narrowed at the base than in *S. graminoides*, often deflected, the bracts subequal, somewhat membranous, usually purplish; outer bract commonly with white scarious margins extending to the tip; inner bract 5″–8″ long, broader than in *S. graminoides*, the tip white-scarious, rounded or truncate, or even retuse, the midvein excurrent as a minute point. Hyaline floral scales mostly longer and broader than in *S. graminoides*, clear white. Divisions of perianth generally shorter and broader than in *S. graminoides*, 4″–4½″ long, 1½″–2½″ wide, finely pubescent on outer surface. Capsules 2–7, usually 5, oblong, ¾″–1½″ wide, 1″–2″ long, at maturity more contiguous than in *graminoides* on shorter suberect pedicels, the valves usually thicker; pedicels often flattened and finely margined. Seeds .02–.04 inches in diameter, subglobose, dark, finely wrinkled-pitted to nearly smooth. (Plate 264).

East Massachusetts to Florida, mostly near the coast in sandy soil, or about the borders of salt marshes. It may be either densely caespitose or of scattered growth.

I have observed this plant closely for a number of years in Van Cortlandt Park, New York City, where it grows in abundance over a low field bordering a brackish marsh often in company with *S. graminoides*. The two plants as they grow together are seen to be clearly distinct and no intergrading forms are found. I have also collected the plant on the New Jersey coast, and Dr. Britton informs me that it is the common species on Staten Island.

SISYRINCHIUM ANGUSTIFOLIUM Miller.

Low, commonly 6′–8′ high (3′–14′), pale and glaucous, usually strict and stiff. Leaves narrow, from almost setaceous to 1″ wide (rarely more lax, and 1½″ wide), sometimes equalling or exceeding the stem but mostly about one-half its length; edges of leaves and stem either smooth or minutely serrulate or denticulate. Stem simple (rarely with a short lateral branch), narrow, ½″ or less to

1″ wide, slightly winged or merely margined, terminated by the solitary spathe, or with two spathes geminate within the enclosing outer bracts. Bracts often conspicuously purplish, very unequal, the outer one commonly twice the length of the inner, sometimes rigidly prolonged to four times its length, becoming over two inches long, sometimes minutely papillose or even papillose-puberulent; inner bract often appearing gibbous in the spathe, 6″–12″ long, attenuate or acute. Flowers variable, sometimes very delicate on slender curved pedicels, often large with the pedicels strict and erect; divisions of perianth sometimes 6″ long, the broader series 2½″ wide, minutely pubescent on outer surface; floral scales either clear white or brownish-tinged. Capsules 1–9, globose, often larger than in *graminoides*, on straighter, less exserted pedicels, seeds often larger than in *graminoides*, .04–.06 in. long, mostly obliquely obovate-oblong, often angled, brownish, smooth or with coarse shallow pitting. (Plate 265.)

In damp or dry soil, sometimes on sterile hills and in dry upland pastures.

From Newfoundland to Saskatchewan, south to Connecticut and New York and along the mountains to North Carolina, in the interior to Kentucky, Missouri and Kansas.

It would appear from the foregoing description of *S. angustifolium* that the species is subject to not a few rather striking variations. I have little doubt, however, that my description embraces rather a group of closely related plants than the mere range of variation shown by a single one. In the material at command, however, I cannot find any certain warrant for the subdivision of the group, nor can I fully assure myself as to the value of any one of the apparently several component forms. It is probable, indeed, that study of these plants in life shall have to lead the way to the correct understanding of their relationships.

The true *S. angustifolium* would appear to range from Newfoundland far westward through Canada and southward through the Alleghenies to North Carolina, finding in Connecticut and New York its southern limit near the coast. Specimens agree generally in drying blackish like *S. graminoides*, and in having the edges of stem and leaves decidedly rough-serrulate. At the southern limit of its coastwise range this form seems to show a closer affinity to *S. graminoides*, and it is in plants from this region that a short lateral branch is occasionally found. It is quite possible, therefore, that plants practically intermediate between this form and *S. graminoides* may occur, especially as starved forms of the latter would naturally tend to assume the general character of *S. angustifolium.*

An Allegheny Mountain form of *S. angustifolium* is very slender and delicate, with highly-colored spathe and linear-elongated outer bract; the edges of the stem, in certain specimens at least, is perfectly smooth. This form also turns blackish in drying.

Plants from the prairie region, from Minnesota to Kansas, do not blacken in drying, and commonly have the edges of the stem and leaves perfectly smooth. The bracts of the spathe are often minutely papillose or even puberulent, a character of which I have found no suggestion in eastern specimens. Both East and West, however, furnish ambiguous plants which seem to contradict the indications of the general run of specimens from each region.

Among the large number of specimens examined, three only have geminate spathes. These specimens are all from the same general region, viz., Kentucky, Missouri and Illinois. Collectors' notes on two of them record "flowers white;" another is labeled further by Dr. Englemann "*S. albidum*, Raf., Dry Hills, St. Louis, earlier than the blue form, May, 1863."

In Rafinesque's description of his *S. albidum** (Atlantic Journ. 17, 1832) we read "spathe unequally 4 valved," the habitat of the plant is given as "in West Kentucky." These developments certainly point strongly to the validity of *S. albidum* Raf., and suggest a promising subject of field study to anyone who may be in a position to prosecute it.

Three Editions of Stansbury's Report.

By Frederick V. Coville.

The report of Captain Stansbury's exploration of the Great Salt Lake, was published as Senate Executive Document No. 3, Special Sesssion (32d Congress), March, 1851, with the following title:

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*It may be stated here as a matter of record that, eight years prior to his description of *S. albidum*, Rafinesque wrote the plant down without description as *S. album* Raf. So it will be found printed in the "First Catalogues and Circulars of the Botanical Garden of Transylvania University at Lexington, in Kentucky, for the year 1824," p. 16. This reference is wanting in Index Kewensis.